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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,683	01/16/2004	Tatsuya Arao	0553-0275-01	8600

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EXAMINER

HU, SHOUXIANG

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,683

Applicant(s)

ARAO ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57-92 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 57-92 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/943,965.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040116.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species II in the reply filed on October 22, 2004, is acknowledged.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claims 57-92 are objected to because of the following informalities and/or defects:

Claims 57, 63, 69, 75, 81, and 87 each recite the terms of a switching thin film transistor and a current controlling thin film transistor, but fail to clarify whether they are both formed in a same pixel unit, since a TFT display device always comprises numerous TFTs and many of them can be regarded as being naturally capable of both of switching and current controlling.

Claims 57, 63, 69, 75, 81, and 87 each recite the term of "to exposed the base insulting film" but fails to clarify that only a portion of the base insulating film is exposed in the instant invention.

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Claims 57, 63, 69, 75, 81, and 87 recite the subject matter of "a metal wiring formed on the portion", but fail to clarify whether the metal wiring is formed on a portion of the interlayer or on an exposed portion of the base insulting film.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 57-92, as being best understood in view of the claim objections above, are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. ("Yamazaki"; JP2000208777A; of record) in view of Smolko (US 3,895,272; of record) and/or Rho (US 6,057,896).

Yamazaki discloses a light-emitting semiconductor device (see Figs. 6 and 25-27; also see its English translation in US Patent 6, 274, 887) for various portable applications (see Figs. 13A-13D), comprising: substrate (4101) that can be formed of a stainless bottom substrate (601) with a base insulating film (602) formed thereon (see col. 4, lines 5-6, col. 14, lines 60-63, and col. 23, lines 38-39 and 58-60 in US Patent 6, 274, 887); a switching thin film transistor (TFT; 4102) and a current controlling TFT (4103; nMOS) on the substrate, and each having a semiconductor layer and a gate electrode with a gate insulating film

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therebetween; an interlayer insulting film (between layers 4141 and 4101); and a wiring (4136 and/or 4135) at least partially formed in the interlayer insulating film with a corresponding portion of it being removed, wherein the wiring is a drain wiring connected to a drain region of the semiconductor layer in the switching TFT and is connected to the gate of the current controlling TFT (see Fig. 27B). Yamazaki further discloses that there is a storage capacitor (4104) formed in part with the drain wiring and a drain wiring can be formed of a metal wiring (see col. 13, lines 40-42). And, at least a portion of the storage capacitor is naturally formed with a portion of the drain wiring and a portion of the substrate with the base insulating film therebetween, since the substrate therein can be formed of a stainless steel.

Yamazaki does not expressly disclose that the wiring can be formed directly on an exposed portion of the base insulating film after a portion of the interlayer being removed, so as to function as a top electrode in the storage capacitor that includes a portion of the substrate as the bottom electrode with a portion of the first insulating film therebetween. However, one ordinary skill in the art would readily recognize that such a storage capacitor can be desirably and readily formed in a simple structure with increased capacitance and with desirable heat sinking and grounding features, as evidenced in Smolko and/or Rho. Smolko teaches to form a simple metal-substrate capacitor structure (see Fig. 1; also see col. 2, lines 14-23), comprising a top electrode formed of a metal wiring (7), and a bottom electrode formed of a portion of the metal substrate (1) with a portion of a first insulating film (2) therebetween. And, Rho teaches to

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formed a storage capacitor (see the cover page figure), where a portion of the interlayer (100) being removed so as to expose a thin insulating film (40) covering and in direct contact to a metal surface, so as to form the storage capacitor with a portion of the drain wiring (140) and a portion of a metal surface (30) with the thin insulating film (40) therebetween.

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to make the semiconductor device of Yamazaki with a portion of the interlayer being removed and a storage capacitor being formed of a portion of the drain wiring and a portion of a metal surface of the substrate with an exposed portion of the base insulating layer therebetween, per the teachings of Smolko and/or Rho, so that a semiconductor device having a simple storage capacitor structure with increased capacitance and with desirable heat sinking and grounding features would be obtained.

Regarding claims 59, 65, 71, 77, 83 and 89, it is noted that it is art known that either a p-type or an n-type TFT can be used as a switching TFT in a TFT display device.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference B is cited as being related to a TFT display device structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is

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571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
January 6, 2005



SHOUXIANG HU
PRIMARY EXAMINER